COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Norfolk Shipbuilding & Drydock Corporation
Norfolk, Virginia
Permit No. VA-60246

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Norfolk Shipbuilding & Drydock Corporation has applied for a Title V Operating Permit for its shipbuilding and ship repair facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____ Date:_____

Air Permit Manager:_____ Date:_____

Regional Permit Manager:_____ Date:_____

FACILITY INFORMATION

Permittee

Norfolk Shipbuilding & Drydock Corporation
750 West Berkley Avenue
Norfolk, Virginia 23523

Facility

Norshipco
750 West Berkley Avenue
Norfolk, Virginia 23523

AIRS Id. No. 51-710-00006

SOURCE DESCRIPTION

SIC Code: 3731 - Shipbuilding and Repair. This facility provides comprehensive services for the repair and maintenance of marine vessels and their subsystems.

The facility is a Title V major source of NOx and PM10. This source is located in an attainment area for all pollutants. The facility was previously permitted under several Minor NSR Permits.

COMPLIANCE STATUS

The facility is inspected once each calendar year. The last inspection was conducted on May 14 and 22, 2001.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following :

Emission Unit Id.	Stack Id.	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	Pollutant Controlled	Applicable Permit Date
003	2	Keeler Residual No. 6 Oil Mixed with Slop Oil Boiler	32 million Btu/hr			
007-A	6	Stone Johnson No. 1 or 2 Fuel Oil Boiler	20 million Btu/hr			October 16, 1997
007-B	6	Stone Johnson Natural Gas Boiler	20 million Btu/hr			October 16, 1997
008	10	York Shipley No. 1 or 2 Fuel Oil Boiler	12 million Btu/hr			December 16, 1981
009	7	Stone Johnson Natural Gas Boiler	31.5 million Btu/hr			May 7, 2001
009	7	Stone Johnson No. 1 or 2 Fuel Oil Boiler	31.5 million Btu/hr			May 7, 2001
010	8	Cleaver Brooks No. 1 or 2 Fuel Oil Boiler	33.4 million Btu/hr			January 6, 2000
010	8	Cleaver Brooks Natural Gas Boiler	33.4 million Btu/hr			January 6, 2000
071	16	No. 1 or 2 Fuel Oil Heat Treat Furnace	1.5 million Btu/hr			
072	17	No. 1 or 2 Fuel Oil Heat Treat Furnace	1.5 million Btu/hr			
073	18	No. 1 or 2 Fuel Oil Heat Treat Furnace	1.5 million Btu/hr			
074	19	No. 1 or 2 Fuel Oil Heat Treat Furnace	1.5 million Btu/hr			
075	20	No. 1 or 2 Fuel Oil Annealing Oven	1.5 million Btu/hr			
076	21	No. 1 or 2 Fuel Oil Annealing Oven	1.5 million Btu/hr			
T32	---	Gasoline Aboveground Storage Tank	3,000 gallons			
006	5	Painting (surface coating using airless sprayers; Draco, Binks or equivalent)				
020	---	Abrasive Blasting				
021	9	Chrome Plating (hard chrome plating)		Packed Bed Scrubber / Composite Mesh Pad System	Cr6+	November 7, 1990

022	11	Carpenter Shop (sawmill and woodworking)		Cyclone	PM, PM10	

024	13	Shot Blast Cabinet (paint shop)	200 lb steel shot per hour	Baghouse	PM, PM10	
026	15	Shot Blast Cabinet (inside machine shop)	200 lb steel shot per hour	Baghouse	PM, PM10	

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

Emissions are summarized in the following tables.

Calendar Year 2000 Actual Emissions

	Criteria Pollutant Emission in Tons/Year				
	VOC	CO	SO_2	PM_{10}	NO_x
Total	85.2		23.4	120.9	102.5

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment

This section applies to Emission Unit 003.

Limitations

The following Virginia Administrative Codes have specific emission requirements have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-900	Existing Source Standard for Particulate Matter
9 VAC 5-40-930	Existing Source Standard for Sulfur Dioxide
9 VAC 5-40-940	Existing Source Standard for Visible Emissions

Monitoring

The permit includes a requirement for monthly visual evaluations of each stack for compliance with the opacity limitation.

No periodic monitoring for the emissions limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 003 size = 32 million Btu/hr
Heating Value of residual oil = 150,000 Btu/gal (from AP42)
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Sulfur Content of both fuels = 2.5%

Emission Unit 003 hourly rate = (32,000,000 Btu/hr) / (150,000 Btu/gal) = 213.3 gal/hr

PM Emission Factors from AP-42 (Fuel Oil Combustion, 9/98):
Residual Fuel = ((8.34(1.12(S) + 0.37)) = (9.34S + 3.085) lb/1000 gallons = (9.34)(2.5) + 3.085
= 26.4 lb/1000 gallons
Distillate Fuel = 2.0 lb/1000 gallons

SO2 Emission Factors from AP-42 (Fuel Oil Combustion, 9/98):
Residual Fuel = 157S lb/1000 gallons = (157)(2.5) lb/1000 gallons = 392.5 lb/1000 gallons
Distillate Fuel = 142S lb/1000 gallons = (142)(2.5) lb/1000 gallons = 355.0 lb/1000 gallons

PM emissions for Emission Unit 003
(26.4 lb/1000 gallons) x (213.3 gal/hr) = ***5.6 lb/hr PM***
Title V permitted rate = ***12.8 lb/hr PM***
Title V permitted rate = ***0.4 lb/mmBtu***

SO2 emissions for Emission Units 003

((392.5 lb/1000 gallons) x (213.3 gal/hr)) = ***83.7 lb/hr***

Title V permitted rate = ***84.5 lb/hr***

Although there is not a great difference in the calculated rate and the permitted rate, it should be noted that the calculated rate is based on fuels having a sulfur content of 2.5%. In reality, the sulfur content of the fuels used at the site is much less; therefore, the actual emissions from the units will be much less than the calculated rate.

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for these units.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include the type of fuel combusted in the boilers, records of visual evaluations, visible emissions evaluations and any corrective action taken in regard to visible emissions, and DEQ-approved, pollutant-specific emission factors and equations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 007 -
Stone Johnson 20 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR/NSPS permit issued October 16, 1977:

NSR/NSPS Condition 3: boiler shall consume no more than 150 million cubic feet of natural gas and 720,000 gallons of distillate oil per year.

NSR/NSPS Condition 5: emissions from the operation of the boiler shall not exceed the limits specified.

NSR/NSPS Condition 6: visible emissions from the boiler shall not exceed 10 percent opacity.

NSR/NSPS Condition 8: approved fuels for the boiler are natural gas and distillate oil.

NSR/NSPS Condition 9: sulfur content of the fuel shall not exceed 0.5% by weight; each shipment shall require a fuel certification.

NSR/NSPS Condition 10: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

The following Code of Federal Regulations has been determined to be applicable:

40 CFR part 60 subpart Dc - Small Industrial-Commercial-Institutional Steam Generating Units

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 007 size = 20 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 150 mmcf of natural gas
= 720,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (20,000,000 Btu/hr) / (140,000 Btu/gal) = 142.9 gal/hr
Hourly rate when burning natural gas = (20,000,000 Btu/hr) / (1050 Btu/cf) = 19,048 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (142.9 gal/hr) = ***10.1 lbs/hr***
(0.6 lb/mmcf) x (19,048 cf/hr) = ***0.011 lbs/hr***
((142)(0.5) lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***25.6 tons/yr***
(0.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.04 tons/yr***
Combined annual = 25.6 tons/yr + 0.04 tons/yr = ***25.6 tons/yr***

Title V permitted rates = ***10.3 lbs/hr and 25.6 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (142.9 gal/hr) = ***2.9 lbs/hr***
(100 lb/mmcf) x (19,048 cf/hr) = ***1.9 lbs/hr***
(20 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***7.2 tons/yr***
(100 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***7.5 tons/yr***
Combined annual = 7.2 tons/yr + 7.5 tons/yr = ***14.7 tons/yr***

Title V permitted rates = ***2.9 lbs/hr and 17.7 tons/yr***

CO emissions

(5 lb/1000 gallons) x (142.9 gal/hr) = ***0.7 lbs/hr***
(84 lb/mmcf) x (19,048 cf/hr) = ***1.6 lbs/hr***
(5 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***1.8 tons/yr***
(84 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***6.3 tons/yr***
Combined annual = 1.8 tons/yr + 6.3 tons/yr = ***8.1 tons/yr***

Title V permitted rates = ***0.7 lbs/hr and 4.4 tons/yr***

It should be noted that the AP42 emission factors for natural gas were updated in July 1998; This update has affected the emissions calculated for CO. The emissions in the 1997 NSR/NSPS permit were calculated using the previous AP42 emission factors.

PM emissions

(2.0 lb/1000 gallons) x (142.9 gal/hr) = ***0.3 lbs/hr***
(7.6 lb/mmcf) x (19,048 cf/hr) = ***0.1 lbs/hr***
(2.0 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***0.7 tons/yr***
(7.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.6 tons/yr***
Combined annual = 0.7 tons/yr + 0.6 tons/yr = ***1.3 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

It should be noted that the AP42 emission factors for natural gas were updated in July 1998; This update has affected the emissions calculated for PM. The emissions in the 1997 NSR/NSPS permit were calculated using the previous AP42 emission factors.

PM10 emissions

(1.0 lb/1000 gallons) x (142.9 gal/hr) = ***0.1 lbs/hr***
(7.6 lb/mmcf) x (19,048 cf/hr) = ***0.1 lbs/hr***
(1.0 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***0.4 tons/yr***
(7.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.6 tons/yr***
Combined annual = 0.4 tons/yr + 0.6 tons/yr = ***1.0 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for these units.

Recordkeeping and Reporting

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include the fuel throughputs, fuel supplier certifications, records of visual evaluations and visible emissions evaluations conducted, any corrective action taken for visible emissions, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records. The permit also requires the submission of fuel quality reports in accordance with 40 CFR part 60 subpart Dc.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 008 -
York Shipley 12 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR permit issued December 16, 1981:

NSR Condition 2: boiler shall consume no more than 72,000 gallons of distillate oil per year.
NSR Condition 3: Emissions from the operation of the boiler shall not exceed the limits specified.
NSR Condition 5: approved fuel is distillate oil.

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources
9 VAC 5-50-80 Standard for Visible Emissions for New Sources
9 VAC 5-40-900 Existing Source Standard for Particulate Matter

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the emission limits will be exceeded:

Emission Unit Size = 12 mmBtu/hr
Heating Value of Distillate Fuel = 140,000 Btu/gal (from AP42)
Sulfur Content of Distillate Fuel = 0.5%

Emission Unit hourly rate = (12,000,000 Btu/hr) / (140,000 Btu/gal) = 85.7 gal/hr

Emission Factors from AP42 (Fuel Oil Combustion, 9/98):
PM for distillate fuel = 2.0 lb/1000 gallons
SO2 for distillate fuel = 142S lb/1000 gallons = (142)(0.5) lb/1000 gallons = 71.0 lb/1000 gallons

PM emissions
(2.0 lb/1000 gallons) x (85.7 gallons/hr) = ***0.17 lbs/hr***
Title V permitted rate = ***7.0 lbs/hr***

SO2 emissions
(71.0 lb/1000 gallons) x (85.7 gallons/hr) = ***6.0 lbs/hr***
(71.0 lb/1000 gallons) x (72,000 gallons/yr) / (2000 lbs/ton) = ***2.6 tons/yr***
Title V permitted rate = ***6.0 lbs/hr and 3.0 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for this unit.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughput, records of visual evaluations, visible emissions evaluations and any corrective action taken in regard to visible emissions, and DEQ-approved, pollutant-specific emission factors and equations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 009 - Stone Johnson 31.5 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR permit issued May 7, 2001:

NSR Condition 3: approved fuels for the boiler are distillate oil and natural gas.

NSR Condition 4: boiler shall consume no more than 330,000 gallons of distillate oil and 275 x 10^6 cubic feet of natural gas per year.

NSR Condition 5: sulfur content of the fuel shall not exceed 0.5% by weight per shipment.

NSR Condition 6: permittee shall obtain a fuel certification with each shipment of fuel.

NSR Condition 7: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

NSR Condition 8: emissions from the operation of the boiler shall not exceed the limits specified.

NSR Condition 9: visible emissions from the boiler shall not exceed 20 percent opacity.

NSR Condition 15: the permittee shall reduce operation or shut down the facility upon request of DEQ. *(This requirement has been included in the Facility-Wide Conditions)*

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation. Additionally, Condition 11 of the NSR permit issued May 7, 2001 requires that the boiler be constructed so as to allow emissions testing at any time, if requested.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 009 size = 31.5 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 275 mmcf of natural gas and 330,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (31,500,000 Btu/hr) / (140,000 Btu/gal) = 225.0 gal/hr
Hourly rate when burning natural gas = (31,500,000 Btu/hr) / (1050 Btu/cf) = 30,000 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (225.0 gal/hr) = ***16.0 lbs/hr***
(0.6 lb/mmcf) x (30,000 cf/hr) = ***0.018 lbs/hr***
((142)(0.5) lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***11.7 tons/yr***
(0.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***0.08 tons/yr***
Combined annual = 11.7 tons/yr + 0.08 tons/yr = ***11.8 tons/yr***

Title V permitted rates = ***16.2 lbs/hr and 11.8 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (225.0 gal/hr) = ***4.5 lbs/hr***
(100 lb/mmcf) x (30,000 cf/hr) = ***3.0 lbs/hr***
(20 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***3.3 tons/yr***
(100 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***13.8 tons/yr***
Combined annual = 3.3 tons/yr + 13.8 tons/yr = ***17.1 tons/yr***

Title V permitted rates = ***4.6 lbs/hr and 17.1 tons/yr***

CO emissions

(5 lb/1000 gallons) x (225.0 gal/hr) = ***1.1 lbs/hr***
(84 lb/mmcf) x (30,000 cf/hr) = ***2.5 lbs/hr***
(5 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.8 tons/yr***
(84 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***11.6 tons/yr***
Combined annual = 0.8 tons/yr + 11.6 tons/yr = ***12.4 tons/yr***

Title V permitted rates = ***2.6 lbs/hr and 12.4 tons/yr***

PM emissions

(2.0 lb/1000 gallons) x (225.0 gal/hr) = ***0.5 lbs/hr***
(7.6 lb/mmcf) x (30,000 cf/hr) = ***0.2 lbs/hr***
(2.0 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.3 tons/yr***
(7.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***1.0 tons/yr***
Combined annual = 0.3 tons/yr + 1.0 tons/yr = ***1.3 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.4 tons/yr***

PM10 emissions

(1.0 lb/1000 gallons) x (225.0 gal/hr) = ***0.2 lbs/hr***
(7.6 lb/mmcf) x (30,000 cf/hr) = ***0.2 lbs/hr***
(1.0 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.2 tons/yr***
(7.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***1.0 tons/yr***
Combined annual = 0.2 tons/yr + 1.0 tons/yr = ***1.2 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity monitoring has been required for this unit.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughputs, fuel supplier certifications, records of required boiler operator training, records of visual evaluations, visible emissions evaluations and any corrective action taken with regard to visible emissions, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 010 - Cleaver Brooks 33.4 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR permit issued January 6, 2000:

NSR Condition 3: approved fuels for the boiler are natural gas and distillate oil.

NSR Condition 4: boiler shall consume no more than 600,000 gallons of distillate oil and 241.2×10^6 cubic feet of natural gas per year

NSR Condition 5: sulfur content of the fuel shall not exceed 0.5% by weight per shipment.

NSR Condition 6: permittee shall obtain a fuel certification with each shipment of fuel.

NSR Condition 7: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

NSR Condition 8: emissions from the operation of the boiler shall not exceed the limits specified.

NSR Condition 9: visible emissions from the boiler shall not exceed 10 percent opacity.

NSR Condition 18: the permittee shall reduce operation or shut down the facility upon request of DEQ. *(This requirement has been included in the Facility-Wide Conditions)*

NSR Condition 19: the permittee shall minimize the duration and frequency of excess emissions by taking listed measures.

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation. Additionally, Condition 13 of the NSR permit issued January 6, 2000 requires that the boiler be constructed so as to allow emissions testing at any time, if requested.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 010 size = 33.4 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 241.2 mmcf of natural gas and 600,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (33,400,000 Btu/hr) / (140,000 Btu/gal) = 238.6 gal/hr
Hourly rate when burning natural gas = (33,400,000 Btu/hr) / (1050 Btu/cf) = 31,810 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (238.6 gal/hr) = ***16.9 lbs/hr***
(0.6 lb/mmcf) x (31,810 cf/hr) = ***0.019 lbs/hr***
((142)(0.5) lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***21.3 tons/yr***
(0.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.07 tons/yr***
Combined annual = 21.3 tons/yr + 0.07 tons/yr = ***21.4 tons/yr***

Title V permitted rates = ***17.0 lbs/hr and 21.4 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (238.6 gal/hr) = ***4.8 lbs/hr***
(100 lb/mmcf) x (31,810 cf/hr) = ***3.2 lbs/hr***
(20 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***6.0 tons/yr***
(100 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***12.1 tons/yr***
Combined annual = 6.0 tons/yr + 12.1 tons/yr = ***18.1 tons/yr***

Title V permitted rates = ***4.8 lbs/hr and 18.1 tons/yr***

CO emissions

(5 lb/1000 gallons) x (238.6 gal/hr) = ***1.2 lbs/hr***
(84 lb/mmcf) x (31,810 cf/hr) = ***2.7 lbs/hr***
(5 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***1.5 tons/yr***
(84 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***10.1 tons/yr***
Combined annual = 1.5 tons/yr + 10.1 tons/yr = ***11.6 tons/yr***

Title V permitted rates = ***2.8 lbs/hr and 11.6 tons/yr***

PM emissions

(2.0 lb/1000 gallons) x (238.6 gal/hr) = ***0.5 lbs/hr***
(7.6 lb/mmcf) x (31,810 cf/hr) = ***0.2 lbs/hr***
(2.0 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***0.6 tons/yr***
(7.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.9 tons/yr***
Combined annual = 0.6 tons/yr + 0.9 tons/yr = ***1.5 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.5 tons/yr***

PM10 emissions

(1.0 lb/1000 gallons) x (238.6 gal/hr) = ***0.2 lbs/hr***
(7.6 lb/mmcf) x (31,810 cf/hr) = ***0.2 lbs/hr***
(1.0 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***0.3 tons/yr***
(7.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.9 tons/yr***
Combined annual = 0.3 tons/yr + 0.9 tons/yr = ***1.2 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for this unit.

Recordkeeping and Reporting

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughputs, fuel supplier certifications, records of boiler operator training, records of visual evaluations, visible emissions evaluations and any corrective action taken, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records.

Condition 12 of the NSR permit issued January 6, 2000 requires the submission of semi-annual fuel quality reports.

EMISSION UNIT APPLICABLE REQUIREMENTS - Combustion Installation

This section applies to Emission Units 071, 072, 073, 074, 075 and 076.

Limitations

The following Virginia Administrative Codes have specific emission requirements have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-280	Existing Source Standard for Sulfur Dioxide

Monitoring

The permit includes a requirement for monthly visual evaluations of each stack for compliance with the opacity limitation.

No periodic monitoring for the emissions limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 071-076 size = 1.5 million Btu/hr per unit
Combined Emission Unit size = (1.5 million Btu/hr) x (6 emissions units) = 9 mmBtu/hr, combined
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Sulfur Content of both fuels = 2.5%

Hourly fuel rate = (9 mmBtu/hr) / (140,000 Btu/gal) = 64.3 gal/hr

SO2 Emission Factors from AP-42 (Fuel Oil Combustion, 9/98):
Distillate Fuel = 142S lb/1000 gallons = (142)(2.5) lb/1000 gallons = 355.0 lb/1000 gallons

SO2 emissions for Emission Units 071 - 076, combined:
((392.5 lb/1000 gallons) x (64.3 gal/hr)) = ***25.2 lb/hr***
Title V permitted rate = ***23.8 lb/hr***
Although there is not a great difference in the calculated rate and the permitted rate, it should be noted that the calculated rate is based on fuels having a sulfur content of 2.5%. In reality, the sulfur content of the fuels used at the site is much less; therefore, the actual emissions from the units will be much less than the calculated rate.

At 0.5% sulfur, the SO2 emissions would be:
((142)(0.5)lb/1000 gallons) x (64.3 gal/hr) = ***4.6 lb/hr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for these units.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include the type of fuel combusted, records of visual evaluations, visible emissions evaluations and any corrective action taken in regard to visible emissions, and DEQ-approved, pollutant-specific emission factors and equations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 006 - Surface Coating - Open Air Painting

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions
9 VAC 5-60-100	National Emission Standards for Hazardous Air Pollutants for Source Categories - Designated Emission Standards

The following Code of Federal Regulations has been determined to be applicable:

40 CFR part 63 subpart II - Shipbuilding and Ship Repair (Surface Coating)

Monitoring, Recordkeeping and Reporting

Although there is an opacity standard applicable, there is no corresponding monitoring, recordkeeping and reporting requirement for it. In addition, 40 CFR part 63 subpart II does not specify an opacity requirement. There is not a great likelihood of opacity from open air coating operations.

The permittee is required to comply with the recordkeeping and reporting requirements contained in 40 CFR 63.788 for each compliance option chosen. Based on EPA guidance, compliance with the MACT satisfies compliance with periodic monitoring. No other monitoring requirements have been specified.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 020 - Abrasive Blasting

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions

Monitoring and Recordkeeping

The permit includes a requirement for monthly visual evaluations of the abrasive blasting equipment for compliance with the opacity limitation. The permittee is required to record and maintain records of all visual evaluations, visible emissions evaluations and any corrective action necessary in regard to visible emissions.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 021 - Chrome Plating Operations

Limitations

The following limitations are derived from the NSR permit issued November 7, 1990:

NSR Condition 2: chrome plating facility shall consume no more than 3.5 lbs/hr, 84.0 lbs/day and 1,200 lbs/month of chromic acid.

NSR Condition 3: concentration of chromic acid shall not exceed 2.1 lbs/gallon of plating solution.

NSR Condition 4: chrome plating facility shall operate at no more than 4.0×10^6 amp-hrs per month.

NSR Condition 6: emissions from the operation of the chrome plating facility shall not exceed the limits specified.

NSR Condition 7: chromic acid emissions shall be controlled by a mist eliminator/fume scrubber system. ***(NOTE: This system is a packed bed scrubber/composite mesh pad system with a mist eliminator, as allowed in 40 CFR 63 subpart N)***

NSR Condition 8: visible emissions shall not exceed 5 percent opacity.

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-50-20	Compliance for New Sources
9 VAC 5-60-100	National Emission Standards for Hazardous Air Pollutants for Source Categories

The following Code of Federal Regulations has been determined to be applicable:

40 CFR part 63 subpart N	National Emissions Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks

Work Practice Standards

40 CFR part 63 subpart N specifies work practice standards for the chromium electroplating process. These standards have been incorporated into the Title V permit.

Operation and Maintenance Plan

40 CFR part 63 subpart N requires the preparation, implementation and maintenance of an operation and maintenance plan. These requirements have been incorporated into the Title V permit. In addition, the Operation and Maintenance Plan has been included as an attachment to the permit.

Monitoring

40 CFR part 63 subpart N sets forth monitoring requirements for the chromium electroplating process, based on the type of control technique used. The control technique used at this facility is a packed-bed scrubber/composite mesh-pad system. These requirements have been incorporated into the Title V permit, and should ensure compliance with the 40 CFR part 63 subpart N standards.

The permit includes a requirement for monthly visual evaluations of the chrome plating operation to show compliance with the opacity requirement. No monitoring for the emission limits from the NSR permit has been included. A stack test was performed on the process in 1997, and showed that the operation was in compliance with the emission limits at that time.

Reporting

40 CFR part 63 subpart N sets forth reporting requirements for the chromium electroplating process. These requirements have been incorporated into the Title V permit, and should ensure compliance with the 40 CFR part 63 subpart N standards.

Recordkeeping

40 CFR part 63 subpart N sets forth recordkeeping requirements for the chromium electroplating process. These requirements have been incorporated into the Title V permit, and should ensure compliance with the 40 CFR part 63 subpart N standards.

In addition, the November 7, 1990 NSR permit sets forth recordkeeping requirements for the chromium electroplating process. These requirements include maintaining records of hours of operation, chromic acid concentration, consumption of chromic acid and monthly amp-hrs of operation. These recordkeeping requirements coincide with limitations placed in the permit.

Finally, the permittee is required to maintain records of visible emission checks, corrective measures taken for visible emissions, visible emission evaluations, and any DEQ-approved, pollutant-specific emission factors used to show compliance with the permit (such as stack test results).

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 022 - Carpenter Shop (Sawmill and Woodworking)

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions
9 VAC 5-40-2270	Existing Source Standard for Particulate Matter (Woodworking Operations)

Monitoring

The permit includes a requirement for monthly visual evaluations of the carpenter shop exhausts for compliance with the opacity limitation.

No periodic monitoring for the particulate matter emission limitation is required in the permit, based on the following demonstration:

Emission factor from AP42 Appendix B.1 = 2.3 kg particulate/hr of cyclone operation
Exit gas parameter = 15,000 cfm (from January 1998 permit application)
1 kg = 2.205 lb
16 ounces = l lb
1 grain = 0.002 ounces
1 hour = 60 minutes

(2.3 kg/hr) x (2.205 lb/kg) x (16 oz/lb) x (1 grain/0.002 oz) x (1 min/15,000 cf) x (1 hour/60 min) = ***0.045 grain/cf***

Title V permitted rate = 0.05 grain/cf

There is not a great likelihood that the permitted limit will be exceeded.

Recordkeeping

The permittee is required to maintain records of visible emission checks, corrective measures taken for visible emissions, visible emission evaluations, and any DEQ-approved, pollutant-specific emission factors used to show compliance with the permit.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 024 and 026 - Wheelabrator Shot Blast Cabinets

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions

Monitoring and Recordkeeping

The permit includes a requirement for monthly visual evaluations of the shot blast cabinet exhausts for compliance with the opacity limitation.

The permittee is required to maintain records of visible emission checks, corrective measures taken for visible emissions, and visible emission evaluations.

FACILITY-WIDE CONDITIONS

The permit includes a standard for asbestos demolition and removal (40 CFR part 61 subpart M). Asbestos removal is not a standard occurrence at the facility. In the event that asbestos demolition and removal are necessary, Norshipco will comply with the appropriate notification requirements.

The permit contains general testing requirements which must be followed in the event testing is conducted to demonstrate compliance with permit conditions, periodic monitoring requirements for opacity for all significant emissions units, and a requirement in the case of a violation of ambient air quality standards. Also included is the volatile organic liquid disposal requirement.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

Comments on General Conditions:

General Conditions B: Permit Expiration

This condition refers to the Board taking action on a permit application. The Board referred to is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the Code of Virginia, and the "Department of Environmental Quality Agency Policy Statement No. 3-2001".

This general condition cites the entire Articles that follow:

B.2. Article 1, Part II of 9 VAC 5 Chapter 80. Federal Permits for Stationary Sources (9 VAC 5-80-50 et seq.)

B.3. Article 1, Part II of 9 VAC 5 Chapter 80. Federal Permits for Stationary Sources (9 VAC 5-80-50 et seq.)

This general condition cites the sections that follow:

B. 9 VAC 5-80-80. "Application"

B.2. 9 VAC 5-80-150. "Action on Permit Applications"

B.3. 9 VAC 5-80-80 "Application"

B.4. 9 VAC 5-80-80 "Application"

B.4. 9 VAC 5-80-140 "Permit Shield"

B.5. 9 VAC 5-80-80 "Application"

STATE ONLY APPLICABLE REQUIREMENTS

The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5-40-140	Existing Source Standard for Odor
9 VAC 5-40-180	Existing Source Standard for Toxic Pollutants
9 VAC 5-50-140	New and Modified Source Standard for Odorous Emissions
9 VAC 5-50-180	New and Modified Source Standard for Toxic Pollutants

INAPPLICABLE REQUIREMENTS

The source has not identified inapplicable requirements in the permit application.

COMPLIANCE PLAN

There is no compliance plan associated with this source.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
SH1	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	2.35 million Btu/hr
SH2	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	9.07 million Btu/hr
OS1	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	0.324 million Btu/hr
TEG1	Titan Emergency Diesel Generator	5-80-720 C.4.b.	PM10, SO2, NOx, CO, VOC	15 gal/hr diesel fuel
PS1	Natural gas-fired cutting table	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	1.0 million Btu/hr
PS2	Natural gas-fired cutting table	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	1.0 million Btu/hr
T6	Water/Oil discharge tank	5-80-720 B.2.	VOC	25,000 gallons
T7	Water/Oil discharge tank	5-80-720 B.2.	VOC	25,000 gallons
T8	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
T17	Recovered oil holding tank	5-80-720 B.2.	VOC	100,000 gallons
T18	Recovered oil holding tank	5-80-720 B.2.	VOC	100,000 gallons
T24	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
T25	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
Plantwide	5 Selig parts washers	5-80-720 B.2.	VOC	15 gallons
Bldg. 101	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	0.225 million Btu/hr
Bldg. 423	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	0.365 million Btu/hr
T32	Aboveground gasoline tank	5-80-720 B.2.	VOC	3,000 gallons

[1]The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit was placed on public notice in The Virginian-Pilot from May 25, 2002 to June 24, 2002. Comments were received from the U.S. EPA.